

42. The method of claim 11, the method further comprising protecting the sugar alcohol from alteration in the rumen of the ruminant to a degree that allows at least about 75 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.

43. The method of claim 11, the method further comprising protecting the sugar alcohol from alteration in the rumen of the ruminant to a degree that allows at least about 90 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.

#### REMARKS

This Amendment is submitted in response to the Office Action that was mailed on January 10, 2001. With this Amendment, no claims are canceled; no claims are amended; and new claims 38-43 are added. Additionally, claims 15-27 stand withdrawn from consideration by the Examiner as being drawn to a non-elected invention, and claims 5-7 and 12 stand withdrawn from consideration by the Examiner as being drawn to a non-elected species, though Applicant continues to traverse the election requirement as to claims 15-27. Applicant no longer traverses the Examiner's species election requirement as between claims 5-7 and 12. Applicant has elected the oral administration species to satisfy the Examiner's species election requirement and notes that claims 1-4, 8-11 and 13-14 read on the elected species. Upon entry of this Amendment, the above-identified application will include 1-43.

#### ***Election Requirement Based On Alleged Distinctness***

In the present Office Action, the Examiner continued to rely on a prior election requirement under 35 U.S.C. §121 that the Examiner originally stated in the Office Action that was mailed on March 31, 2000. The Examiner's prior election requirement placed claims "1-14, 19-24, drawn to Methods of Feed Administration, classified in Class 424, Subclass 438" in Group I, placed

claims "15-18, drawn to Feed Production, classified in Class 426, Subclass 54 in Group II, and placed claims "25-27, drawn to Feed, classified in Class 14, Subclass 738 in Group III.

In the March 31, 2000 Office Action, the Examiner's original basis in support of this election requirement stated:

Inventions of Groups II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another materially different process. (MPEP § 806.05(f)). In the instant case process as claimed can be used to make a materially different product; bait.

In the Response to this March 31, 2000 Office Action, Applicant pointed out how the Examiner's assertion that the method of the present invention, as defined in claims 15-18, "can be used to make a materially different product; bait" was erroneous. Specifically, the Examiner's comments about bait disregarded the preamble details of claim 15 that are also required by claims 16-18 each also require the preamble details of claim 15, since claims 16-18 each depend from claim 15. Consequently, Applicant argued:

[A] bait production technique that incorporates the ruminant feed produced by the method of claims 15-18 would not fall within the confines of claims 15-18. **As claimed**, the ruminant feed production method of claim 15 is directed to production of ruminant feed, and not to a bait production method. Consequently, the Examiner's use of bait as an alleged example of a "materially different product" that may be made in accordance with the method of claim 15 is erroneous, and the election requirement as between the inventions of Groups II and III is improper and unsupported and should therefore be withdrawn.

Additionally, Applicant noted that the only statement in support of the alleged election requirement between the inventions of Groups I and II was the following bare conclusory assertion that was provided by the Examiner: "The process of Groups I and II are patentably distinct independent inventions." Thus, in the March 31, 2000 Office Action, the Examiner provided no explanation or support for the election requirement between the inventions of Groups I and II.

In response to these prior arguments challenging the alleged distinctness, the Examiner, in the July 6, 2000 Office Action, merely stated:

The traversal is on the ground(s) that Applicant argues in the Groups (sic) are not distinct and examiner is erroneous in characterizing the product as bait. This is not found persuasive because examiner finds the classification, products and processes warrant separate considerations, and would result in separate, patentable, (sic) after multiple, burdensome search. The requirement is still deemed proper and is therefore made FINAL.

This response of the Examiner did not address or rebut Applicant's challenges of the Examiner's distinctness arguments that Applicant provided in response to the March 31, 2000 Office Action.

The Manual of Patent Examining Procedure ("M.P.E.P.") 97<sup>th</sup> Edition, July 1998), at §803 that is entitled, Restriction - When Proper, states:

Under the statute an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either independent (MPEP § 806.04 - § 806.04 (i)) or distinct MPEP § 806.05 - § 806.05 (i)).

(Emphasis added). The Examiner's argument (recited above) from the March 31, 2000 Office Action completely failed to address the distinctness requirement, as challenged by Applicant. Thus, the Examiner continued to allege that distinct inventions are contained in the application. However, Applicant challenged this allegation about distinctness, and the Examiner did not, as of the March 31, 2000 Office Action, supply an appropriate response that supported the Examiner's continued distinctness allegations.

In the present Office Action, the Examiner continued to allege that the claims the Examiner placed in Groups I, II, and III constitute distinct inventions:

Neither are the restricted groups seen as patentably the same; the production) of a feed is not the same as the feed itself, or the or the process of administering it to the animal. The process are both independent of each other and distinct, one from the other.

The Examiner's additional argument that is recited above continues to allege that distinct inventions are contained in the application. The Examiner, by showing that the inventions of the claims placed in Groups I, II, and III are not the same, has shown that the inventions of the claims placed in Groups I, II, and III, are categorized differently. However, the mere fact that claims belonging to different categories are in the same application does not establish that the claims of the different categories are distinct:

Where claims to all three categories, product, process of making and process of use, are included in a national application, a three way requirement for restriction can only be made where the process of making is distinct from the product. If the process of making and the product are not distinct, the process of using may be joined with the claims directed to the product and the process of making the product even though a showing of distinctness between the product and process of using the product can be made.

Paragraph (b) of 37 CFR §1.141, which is entitled Different Inventions in One Application. Under the heading "DISTINCT", §802.01 of the MPEP states:

The term "distinct" means that two or more subjects as disclosed are related, for example, as combination and part (subcombination) thereof, process and apparatus for its practice, process and product made, etc., ***but are capable of separate manufacture, use, or sale as claimed***, AND ARE PATENTABLE (novel and unobvious) OVER EACH OTHER (though they may each be unpatentable because of the prior art). It will be noted that in this definition the term related is used as an alternative for dependent in referring to subjects other than independent subjects.

(Emphasis --Bold and italics-- added). The Examiner continues to allege that the inventions of Groups I, II, and III are distinct. However, mere allegations that the inventions of Groups I, II, and III are distinct is not enough. The Examiner, to establish distinctness, must additionally establish that the inventions of Groups I, II, and III "are capable of separate manufacture, use, or sale as claimed." The Examiner has not yet met this burden.

Consequently, the Examiner's restriction between the invention of the above-identified application as defined in the claims that the Examiner has placed in Groups I, II, and III

is improper and should be withdrawn. Therefore, Applicant continues to traverse the Examiner's election requirement between the invention of the above-identified application, as defined in the claims the Examiner has placed in Groups I, II, and III and requests reconsideration and withdrawal of this election requirement.

***Claim Rejections Under the Enablement Requirement of the First Paragraph of 35 U.S.C. §112***

In the Office Action, the Examiner rejected claims 1-4, 8-11, 13, 14, and 28-37 under the first paragraph of 35 U.S.C. §112 as allegedly "containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or which is most nearly connected, to make and/or use the invention." Despite the Examiner's comments, claims 1-4, 8-11, 13, 14, and 28-37 are in fact enabled by the specification of the above-identified application in accordance with the first paragraph of 35 U.S.C. §112.

The Examiner's comments in support of this enablement rejection were:

These claims are beyond the scope of the specification, which clearly states (p. 3) that feeding of sugar alcohols results in no increase in total solids or other component content, protection is critical, claims 1 and 10 are inoperative.

The Examiner comments take the sentence of interest to the Examiner from the application out of context. First, the sentence of concern to the Examiner reads as follows:

*It has also been found that feeding these same sugar alcohols orally to the ruminant, **without protecting the sugar alcohol from alteration in the rumen of the ruminant**, results in no increase in the total solids content, the fat content, the true protein content, or the lactose content of the milk produced by the ruminant.*

(page 3, lines 10-14, of the above-identified application; emphasis -- bold and italics -- added), while the Examiner alleges that this sentence says the following: "[F]eeding of sugar alcohols results in no increase in total solids or other component content." The Examiner's characterization of this sentence fails to recognize that this statement is applicable to orally-fed sugar alcohol and is only true when orally-fed sugar alcohols are not protected "from alternation in the rumen of the

ruminant.” Essentially, as Applicant explained to the Examiner during the February 27, 2001 teleconference, the sentence of concern to the Examiner merely says that one not practicing Applicant’s invention will not achieve the benefits of Applicant’s invention. Indeed, the entire paragraph that contains the sentence of concern to the Examiner reads as follows:

It has been discovered that if a sugar alcohol is introduced directly in the abomasum of a ruminant, the total solids content of milk produced by the ruminant is typically increased. Additionally, this direct introduction of sugar alcohol into the abomasum also causes the weight percent of fat, the weight percent of true protein, and/or the weight percent of lactose in the milk to increase. For example, when abomasally infusing sugar alcohols, such as sorbitol, xylitol, and glycerol, the solids content of milk produced by the ruminant, particularly the fat content and the true protein content of the milk, typically increases. *It has also been found that feeding these same sugar alcohols orally to the ruminant, **without protecting the sugar alcohol from alteration in the rumen of the ruminant**, results in no increase in the total solids content, the fat content, the true protein content, or the lactose content of the milk produced by the ruminant.*

(page 3, lines 3-14, of the above-identified application; emphasis -- bold and italics -- added).

As was discussed during the teleconference between the Examiner, Applicant, and Applicant's below-named attorney on February 27, 2001, Applicant generally discusses abomasal infusion and oral feeding as two techniques for feeding sugar alcohols to ruminants in accordance with the present invention. With abomasal infusion, sugar alcohol is supplied to the abomasum, and is therefore protected from alteration in the rumen, since the sugar alcohol goes directly into the abomasum without passing through the rumen. (Page 7, lines 24-27, and page 8, line 14, though page 10, line 23, of the above-identified application). With oral feeding in accordance with the present invention, sugar alcohol is ruminally-protected, and therefore supplied to the abomasum; the term “ruminally-protected” is defined as “protected from alternation during passage through the rumen.” (Page 4, lines 23-24, of the above-identified application). The application goes on to discuss differing degrees of ruminal protection in accordance with the present invention. (Page 4, line 25, through page 5, line 13, of the above-identified application).

Claim 1 of the above-identified application reads as follows:

*1. A method of enhancing milk component production in a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant.*

Thus, claim 1 specifies that sugar alcohol is supplied to the abomasum. Claims 8-9 and 29-32 each depend from claim 1 and therefore also require that sugar alcohol be supplied to the abomasum. As discussed with the Examiner during the February 27, 2001 teleconference, this language of claim 1 about supplying sugar alcohol to the abomasum is short-hand terminology for techniques that are effective to get intact sugar alcohol to the abomasum. Both (1) abomasal infusion of sugar alcohol and (2) oral ingestion of sugar alcohol where the sugar alcohol is ruminally-protected, which are each disclosed in the present application as mentioned above, are techniques that cause sugar alcohol to be supplied to the abomasum, as required by claim 1. Thus, despite the Examiner's comments in the Office Action, claims 1, 8-9, and 29-32 are clearly enabled by the above-identified application in accordance with the first paragraph of 35 U.S.C. §112.

Furthermore, claims 2-4 each require protection of the sugar alcohol from alteration in the rumen, where claims 2-4 each require a different degree of protection. Oral ingestion of sugar alcohol where the sugar alcohol is ruminally-protected, which is disclosed in the present application as mentioned above, as required by claim 2-4. In the application, the term "ruminally-protected" is defined as "protected from alternation during passage through the rumen." (Page 4, lines 23-24, of the above-identified application). Also, as explained above, differing degrees of ruminal protection that correspond to the differing degrees required by claims 2-4 are discussed in the application. (Page 4, line 25, through page 5, line 13, of the above-identified application). Also, claim 28 specifies that the "sugar alcohol is ruminally-protected." Again, such ruminal-protection of sugar alcohol in accordance with claim 28 is disclosed in the application. Thus, despite the Examiner's comments in the Office Action, claims 2-4, and 28 are clearly enabled by the above-identified application in accordance with the first paragraph of 35 U.S.C. §112.

The comments provided above with respect to claim 1 are equally applicable to claim 10 which, like claim 1, also defines "supplying the sugar alcohol to the abomasum of the ruminant." The comments provided above with respect to claims 8-9 and 29-32 are equally applicable to claims 13-14, and 34-37, since claims 13-14 and 34-37 each depend from claim 10. Likewise, the comments provided above with respect to claims 2-4 are equally applicable to claim 11 and the comments provided above with respect to claim 28 are equally applicable to claim 33. Thus, despite the Examiner's comments in the Office Action, claims 10-11, 13-14, and 33-37 are clearly enabled by the above-identified application in accordance with the first paragraph of 35 U.S.C. §112.

Claims 1-4, 8-11, 13, 14, and 28-37 are believed allowable for the reasons provided above. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-4, 8-11, 13, 14, and 28-37 under the enablement requirement of the first paragraph of 35 U.S.C. §112 and that claims 1-4, 8-11, 13, 14, and 28-37 be allowed.

***Claim Rejections Under The Second Paragraph of 35 U.S.C. §112***

In the Office Action, the Examiner rejected claims 1-4, 8-11, 13, 14, and 28-37 under 35 U.S.C. §112, second paragraph, as allegedly "being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention." The Examiner provided the following remarks in support of this rejection under the second paragraph of 35 U.S.C. §112 in a prior Office Action:

The claims are ambiguous, in accord with applicants arguments. Arguments and p. 3 of the specification lead one to conclude normal feeding, without sufficient protection to prevent catabolism of sugar alcohols in the rumen can not result in the claimed component increases. Claims 1 and 10 do not have restrictions permitting of recognition of a need to prevent alteration of the sugar alcohols. The added features of claims 2, 3, and 4 seem to be repetitive of each other, and imply claim 1 is not requiring protection. The claims should be amended to afford separation of the nature of the claimed material - if what is intended, and this is not clear, is quantitative differences, these differences are not supported, nor are they



distinctive - "protecting" and "substantial" and "alteration" all being relative terms, thus requiring quantification and/or explanation.

Despite the Examiner's comments, claims 1-4, 8-11, 13, 14, and 28-37 are believed to be definite within the meaning of 35 U.S.C. §112, second paragraph.

Claims 1 and 10 that the Examiner rejected under the second paragraph of 35 U.S.C. §112 are recited below:

1. *A method of enhancing milk component production in a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant.*
10. *A method of feeding a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant, the sugar alcohol effective to enhance milk component production by the ruminant.*

As noted above, with regard to claims 1 and 10, the Examiner stated:

Claims 1 and 10 do not have restrictions permitting of recognition of a need to prevent alteration of the sugar alcohols.

Claims 1 and 10 each specify that sugar alcohol is supplied to the abomasum. As discussed with the Examiner during the February 27, 2001 teleconference, this language of claims 1 and 10 about supplying sugar alcohol to the abomasum is short-hand terminology for techniques that are effective to get intact sugar alcohol to the abomasum. If at least some sugar alcohol of the feed does not reach the abomasum then the requirements of claims 1 and 10 are not met. This would be clear to one of ordinary skill in the art, especially when read in light of the specification of the application which is entirely concerned with techniques for getting sugar alcohol to the abomasum. Both (1) abomasal infusion of sugar alcohol and (2) oral ingestion of sugar alcohol where the sugar alcohol is ruminally-protected, which are each disclosed in the present application as mentioned above, are examples of techniques that cause sugar alcohol to be supplied to the abomasum, as required by claims 1 and 10.

As discussed during the February 27, 2001 teleconference, Applicant generally discusses abomasal infusion and oral feeding as two techniques for feeding sugar alcohols to ruminants in accordance with the present invention. With abomasal infusion, sugar alcohol is supplied to the abomasum, and is therefore protected from alteration in the rumen, since the sugar alcohol goes directly into the abomasum without passing through the rumen. (Page 7, lines 24-27, and page 8, line 14, though page 10, line 23, of the above-identified application). With oral feeding in accordance with the present invention, sugar alcohol is ruminally-protected, and therefore supplied to the abomasum; the term “ruminally-protected” is defined as “protected from alternation during passage through the rumen.” (Page 4, lines 23-24, of the above-identified application). The application goes on to discuss differing degrees of ruminal protection in accordance with the present invention. (Page 4, line 25, through page 5, line 13, of the above-identified application).

The foregoing comments demonstrate that the “*supplying the sugar alcohol to the abomasum*” language of claims 1 and 10 does incorporate a requirement that, in the words of the Examiner, some “alteration of the sugar alcohols” be prevented. Specifically, if at least some sugar alcohol of the feed does not reach the abomasum then the requirements of claims 1 and 10 are not met, since that would mean that the sugar alcohol was not supplied to the abomasum. Thus, despite the Examiner’s comments in the Office Action, claims 1 and 10 are definite in accordance with the second paragraph of 35 U.S.C. §112.

Next, with regard to claims 2, 3, and 4, the Examiner stated:

The added features of claims 2, 3, and 4 seem to be repetitive of each other, and imply claim 1 is not requiring protection.

To a limited extent, the Examiner is correct about claim 1, since claim 1 does not require that the sugar alcohols of the feed be “ruminally-protected,” where “ruminally-protected” is defined as “protected from alternation during passage through the rumen.” (Page 4, lines 23-24, of the above-identified application). Indeed, claim 1 does not even require that the sugar alcohols pass through the rumen. Instead as explained above, claims 1 and 10 each specify that sugar alcohol is supplied to the abomasum. This language of claims 1 and 10 about supplying sugar alcohol to the abomasum

is short-hand terminology for techniques that are effective to get intact sugar alcohol to the abomasum. If at least some sugar alcohol of the feed does not reach the abomasum then the requirements of claims 1 and 10 are not met. Both (1) abomasal infusion of sugar alcohol and (2) oral ingestion of sugar alcohol where the sugar alcohol is ruminally-protected, which are each disclosed in the present application as mentioned above, are examples of techniques that cause sugar alcohol to be supplied to the abomasum, as required by claims 1 and 10.

Thus, claim 1 does not require that the sugar alcohols of the feed be “ruminally-protected”. Instead, claim 1 requires that sugar alcohol be supplied to the abomasum. Ruminally-protecting” the sugar alcohols of the feed is one exemplary technique, but not the only technique, that may be used to supply sugar alcohols to the abomasum, as required by claim 1.

Claims 2, 3, and 4 read as follows:

2. *The method of claim 1 wherein supplying the sugar alcohol to the abomasum of the ruminant comprises:  
protecting the sugar alcohol from significant alteration in the rumen of the ruminant; and  
orally feeding the feed to the ruminant.*
3. *The method of claim 2, the method further comprising protecting the sugar alcohol from substantial alteration in the rumen of the ruminant.*
4. *The method of claim 2, the method further comprising protecting the sugar alcohol from any alteration in the rumen of the ruminant.*

Thus, claims 2, 3, and 4 each further define the “*supplying the sugar alcohol to the abomasum*” language of claim 1 in terms of “protecting the sugar alcohol from . . . alteration in the rumen of the ruminant,” where claims 2, 3, and 4 each define differing degrees of ruminal protection in accordance with the present invention. (Page 4, line 25, through page 5, line 13, of the above-identified application). Of course, in addition to causing the sugar alcohols to be “ruminally-protected,” (where “ruminally-protected” is defined as “protected from alternation during passage through the rumen”), abomasal infusion would also meet the “protecting the sugar alcohol from . .

. alteration in the rumen of the ruminant” requirement of claims 2, 3, and 4, even though claims 2, 3, and 4 each define differing degrees of ruminal protection, since abomasal infusion bypasses the rumen and thereby offers full protection of the sugar alcohol from “alteration in the rumen of the ruminant.”

The foregoing comments demonstrate, despite the Examiner’s comments to the contrary, that the added features of claims 2, 3, and 4 are not “repetitive of each other.” Instead, claims 2, 3, and 4 each define claims differing degrees of ruminal protection in accordance with the present invention. (Page 4, line 25, through page 5, line 13, of the above-identified application). Also, “[t]he added features of claims 2, 3, and 4” do not “imply claim 1 is not requiring protection.” Instead, claims 2, 3, and 4 specify differing degrees of ruminal protection that satisfy the “*supplying the sugar alcohol to the abomasum*” language of claim 1, where claim 1 does not specify any particular degree of protection: If at least *some* sugar alcohol of the feed does not reach the abomasum then the requirement of claim 1 is not met. Furthermore, besides rendering the sugar alcohol “ruminally-protected,” abomasal infusion would also meet the “protecting the sugar alcohol from . . . alteration in the rumen of the ruminant” requirement of claims 2, 3, and 4, even though claims 2, 3, and 4 each define differing degrees of ruminal protection, since abomasal infusion bypasses the rumen and thereby offers full protection of the sugar alcohol from “alteration in the rumen of the ruminant.” Also, abomasal infusion would meet the “*supplying the sugar alcohol to the abomasum*” language of claims 1 and 10, since abomasal infusion cause the sugar alcohol to bypass the rumen and thereby causes sugar alcohol to be supplied to the abomasum, as required by claims 1 and 10.

Next, also with respect to claims 2, 3, and 4, the Examiner stated:

The claims should be amended to afford separation of the nature of the claimed material - if what is intended, and this is not clear, is quantitative differences, these differences are not supported, nor are they distinctive - “protecting” and “substantial” and “alteration” all being relative terms, thus requiring quantification and/or explanation.

The definiteness requirement of the second paragraph of 35 U.S.C. §112 is concerned with whether one of ordinary skill in the art will reasonably be able to determine if his subject matter falls within the scope of a particular claim. Conversely, if one of ordinary skill in the art would reasonably be able to determine if his subject matter falls within the scope of the claim, that claim is definite in accordance with the definiteness requirement of the second paragraph of 35 U.S.C. §112.

As noted above, claims 2, 3, and 4 read as follows:

2. *The method of claim 1 wherein supplying the sugar alcohol to the abomasum of the ruminant comprises:  
protecting the sugar alcohol from significant alteration in the rumen of the ruminant; and  
orally feeding the feed to the ruminant.*
3. *The method of claim 2, the method further comprising protecting the sugar alcohol from substantial alteration in the rumen of the ruminant.*
4. *The method of claim 2, the method further comprising protecting the sugar alcohol from any alteration in the rumen of the ruminant.*

Thus, claims 2, 3, and 4 each require “protecting the sugar alcohol from . . . alteration in the rumen of the ruminant,” where claims 2, 3, and 4 each define differing degrees of ruminal protection in accordance with the present invention. (Page 4, line 25, through page 5, line 13, of the above-identified application).

The Examiner’s concern about the alleged relative nature of the term “protecting” is not understood, since claims 2, 3, and 4 each define differing degrees of ruminal protection. Furthermore, even if differing degrees of protection were not defined, the mere fact that the sugar alcohol is “protected” is clear. Indeed, the above-identified application is generally concerned with protecting sugar alcohol from alteration in the rumen of the ruminant. This protection may be complete, as with abomasal infusion. With abomasal infusion, sugar alcohol is supplied to the abomasum, and is therefore fully protected from alteration in the rumen, since the sugar alcohol goes directly into the abomasum without passing through the rumen. (Page 7, lines 24-27, and page 8, line

14, though page 10, line 23, of the above-identified application). With oral feeding in accordance with the present invention, sugar alcohol is ruminally-protected, and therefore protected from alteration in the rumen: The term “ruminally-protected” is defined as “protected from alternation during passage through the rumen.” (Page 4, lines 23-24, of the above-identified application).

Of course, as demonstrated by the discussion about different degrees of ruminally-protected sugar alcohol, (page 4, line 25, through page 5, line 13, of the above-identified application), protection of ruminally-protected sugar is not necessarily complete. Furthermore, a claim requiring protecting sugar alcohol from alteration in the rumen of the ruminant, and no more, would be met if *at least some* sugar alcohol were protected from alteration in the rumen of the ruminant. Therefore, as stated before, the Examiner’s concern about the alleged “relative” nature of the term “protecting” is not understood, since the existence of any protection, no matter how small, would meet the definition of the word “protecting,” so long as other terminology modifying this broad meaning of “protecting” were not present in a particular claim. The term “protecting” is not, in and of itself, relative. Either there is or is not at least some protection of sugar alcohol from alteration in the rumen.

Similar comments apply with respect to the Examiner’s concern about the term “alteration,” which is always stated in the claims, as presently drafted, in terms of “alteration in the rumen. If the feed containing the sugar alcohol is abomasal infused, “alteration [of the sugar alcohol] in the rumen of the ruminant” would be fully prevented, since abomasal infusion causes the feed containing the sugar alcohol to bypass the rumen. On the other hand, if the feed containing the sugar alcohol is orally fed to the ruminant, “alteration [of the sugar alcohol] in the rumen of the ruminant” would be relative and dependant upon the degree to which the sugar alcohol is ‘ruminally-protected.’”

Of course, as demonstrated by the discussion about different degrees of ruminally-protected sugar alcohol, (page 4, line 25, through page 5, line 13, of the above-identified application), alteration of ruminally-protected sugar in the rumen is not necessarily fully prevented. Furthermore, a claim requiring that alteration of sugar alcohol in the rumen of the ruminant be

avoided, and no more, would be met if alteration of *at least some* sugar alcohol in the rumen were avoided. Therefore, as stated before, the Examiner's concern about the alleged "relative" nature of the term "alteration" is not understood, since the prevention of some alteration, no matter how small, would meet the definition of preventing "alteration," so long as other terminology modifying this broad meaning of preventing "alteration" were not present in a particular claim. The term "alteration" is not, in and of itself, relative. Either there is or is not at least some alteration of sugar alcohol in the rumen.

Finally, the Examiner expressed concern about use of the word "substantially" in claim 3, which states: "... protecting the sugar alcohol from substantial alteration in the rumen of the ruminant." Details provided in the above-identified application are instructive about what the term "substantial" means in the context of claim 3:

When the sugar alcohol is included as a component of the feed that is orally fed to the ruminant in accordance with the present invention, the sugar alcohol should at least be ruminally-protected to a degree sufficient to prevent significant alteration of the sugar alcohol in the rumen such that at least about 50 weight percent of the sugar alcohol orally ingested by the ruminant arrives unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant. Preferably, the sugar alcohol that is included as part of the orally ingested feed composition is ruminally-protected to a degree sufficient to allow at least about 75 weight percent of the orally-ingested sugar alcohol to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant. Still more preferably, the sugar alcohol that is included as part of the orally-ingested feed composition is ruminally-protected to a degree sufficient to allow at least about 90 weight percent of the orally-ingested sugar alcohol to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant. Most preferably, the sugar alcohol that is included as part of the orally-ingested feed composition is ruminally-protected to a degree sufficient to allow all, or essentially all, of the orally-ingested sugar alcohol to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant.

(Page 4, line 25, through page 5, line 13, of the above-identified application). As this paragraph explains, "significant" in the context of prevention of "alteration of the sugar alcohol in the rumen"

when the sugar alcohol is orally ingested means that “at least about 50 weight percent of the sugar alcohol orally ingested by the ruminant arrives unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.” While other specific percentages (“at least about 75 weight percent” and “at least about 90 weight percent”) are provided in the context of prevention of “alteration of the sugar alcohol in the rumen” when the sugar alcohol is orally ingested, the term “substantial” is not limited to either of these two approximate values. One of ordinary skill in the art would recognize this, since the word “substantial” is not used in connection with either of these two approximate values. Instead, one of ordinary skill in the art would understand that the term “substantial” means something more than significant, and therefore greater than “at least about 50 weight percent,” while being less than all. Thus, one of ordinary skill in the art would understand that the term “substantial” means, in the context of claim 3, more than significant (“at least about 50 weight percent”), and encompasses both “at least about 75 weight percent” and “at least about 90 weight percent”, while not meaning all.

The foregoing comments are believed to adequately address the Examiner’s comments about the terminology of concern in claims 1-4 and 10. Claims 1-4 and 10 are believed allowable for the reason provided above. Claims 8-9 and 28-32 are also believed allowable, since claims 8-9 and 28-32 each depend from allowable claim 1. Likewise, claims 11, 13, 14, and 33-37 are believed allowable, since claims 11, 13, 14, and 33-37 depend from allowable claim 10. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejections of claims 1-4, 8-11, 13, 14, and 28-37 under 35 U.S.C. §112, second paragraph, and that claims 1-4, 8-11, 13, 14, and 28-37 be allowed.

***Claims Rejection Under 35 U.S.C. §102(b)***

In the Office Action, the Examiner rejected claims 1-4, 8-11, 13, 14, and 28-37 under 35 U.S.C. §102(b) as allegedly “being anticipated by” U.S. Patent No. 4,127,676 to Merensalmi (subsequently referred to as the “Merensalmi” patent). In support of this rejection, the Examiner stated in the July 6, 2000, Office Action:



Sugar alcohols are supplied orally to milking cows, enhancing milk production (col. 1, lines 5-9) (col. 2, line 14- line 48) and is protected from breakdown in the rumen (col. 3, lines 30-33), to effectively increase blood sugar (Example 3).

In the present Office Action, the Examiner additionally stated:

As to the art rejections, applicant argues merensaline (sp) shows a fat decrease in %; no increase in milk components, and no protection; further, no in vivo testing is shown. . . .

Examiner finds that Merensalmi does what applicant claims - feeds sugar to cows - thus, inherently, the same effects result - Merensalmi does specify an increase milk yield - the % increase may be low, or negative, yet total amount be higher than without feeding.

However, Merensalmi does state that the sugar alcohols are sufficiently intact (col. 2, lines 49-57).

Despite the Examiner's comments, the Merensalmi patent does not disclose each and every feature defined in any of claims 1-4, 8-11, 13, 14, and 28-37 and consequently does not anticipate any of claims 1-4, 8-11, 13, 14, or 28-37.

Independent claims 1 and 10 read as follows:

1. *A method of enhancing milk component production in a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant.*
10. *A method of feeding a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant, the sugar alcohol effective to enhance milk component production by the ruminant.*

Thus, claims 1 and 10 require enhancing milk component production by supplying a sugar alcohol to the abomasum of the ruminant.

The Merensalmi patent generally discloses a fodder additive for cows that may increase milk production of cows. However, the Merensalmi patent does not disclose anything about the fodder additive enhancing milk **component** concentrations in produced milk. In fact, Applicant directs the Examiner's attention to Column 3, line 64, to Column 4, line 2, of the Merensalmi patent where a net **decrease** in the fat percentage in milk produced by test animals is observed upon start of a sugar alcohol feeding regimen. Additionally, while the Merensalmi patent does disclose an increase in blood sugar levels during test feeding of a test animal, this increase is merely a recovery to levels present at the onset of the test feeding regimen prior to introduction of the sugar alcohol and no corresponding enhancement in milk component concentrations is disclosed. Furthermore, as stated above, this recovery of blood sugar levels is not disclosed to have increased milk component concentrations in produced milk. Instead, the Merensalmi patent discloses only a decrease in fat concentrations in produced milk in reaction to the blood sugar level recovery.

Again, in support of this rejection, the Examiner included the following new statement in the present Office Action:

Examiner finds that Merensalmi does what applicant claims - feeds sugar to cows - thus, inherently, the same effects result . . . .

As Applicant discussed with the Examiner during the February 27, 2001 teleconference, the Merensalmi patent does not in fact do "what applicant claims - feed sugar to cows . . . ." Claims 1 and 10 specifically require that sugar alcohol be supplied "to the abomasum of the ruminant." There is no disclosure of this in the Merensalmi patent. As discussed more fully below in the context of claim 2-4, the Merensalmi merely discloses *in vitro* testing of sugar alcohol mixtures that were exposed to ruminant fluid outside of the cow. The mere disclosure of *in vitro* testing (outside the rumen, by definition) does not amount to a disclosure of *in vivo* results that show sugar alcohol reaching the abomasum intact.

Indeed, the Merensalmi patent merely discloses sugar alcohol testing in rumen fluid, outside of a cow, without providing any type of detail that would allow one to expect that the rumen testing fluid conditions approximate the conditions found during oral ingestion of sugar alcohol by

the ruminants. The mere disclosure of this rumen fluid testing, along with the Merensalmi Example 5 disclosure of sugar alcohol feeding, does not amount to a disclosure that the sugar alcohols ingested by the animals in Example 5 behave the same way as the sugar alcohols that were tested in the rumen fluid. Furthermore, the Merensalmi patent discloses nothing about abomasal infusion of sugar alcohols directly into the abomasum, which is another approach that may be used for purposes of supplying sugar alcohol to the abomasum, as required by claims 1 and 10.

Thus, the mere existence of *in vitro* testing, outside of the cow, does not establish that the cows of the Merensalmi patent were fed sugar alcohol that then *reached the abomasum*, as required by claims 1 and 10. Thus, the Examiner's basis for alleging inherency must fail, since there is no disclosure whatsoever in the Merensalmi patent about the ingested sugar alcohol reaching the abomasum, as required by claims 1 and 10.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 1 and 10. Consequently, the Merensalmi patent does not anticipate either claim 1 or claim 10 of the above-identified application.

Next, claims 2-4, 11, 28, and 33 read as follows:

2. *The method of claim 1 wherein supplying the sugar alcohol to the abomasum of the ruminant comprises:*  
*protecting the sugar alcohol from significant alteration in the rumen of the ruminant; and*  
*orally feeding the feed to the ruminant.*

3. *The method of claim 2, the method further comprising protecting the sugar alcohol from substantial alteration in the rumen of the ruminant.*

4. *The method of claim 2, the method further comprising protecting the sugar alcohol from any alteration in the rumen of the ruminant.*

11. *The method of claim 10 wherein supplying the sugar alcohol to the abomasum of the ruminant comprises:*  
*protecting the sugar alcohol from significant alteration in the rumen of the ruminant; and*

*orally feeding the feed to the ruminant.*

28. *The method of claim 1 wherein the sugar alcohol is ruminally-protected.*

33. *The method of claim 10 wherein the sugar alcohol is ruminally-protected.*

Therefore, claims 2 and 11 further specify that the sugar alcohol is protected from significant alteration in the rumen of the ruminant, while claim 3 specifies that the sugar alcohol is protected from substantial alteration in the rumen, and claim 4 specifies that the sugar alcohol is protected from *any* alteration in the rumen. Furthermore, claims 28 and 33 specify that the sugar alcohol is ruminally-protected, which means that the sugar alcohol is “protected from alternation during passage through the rumen.” (Page 4, lines 23-24, of the above-identified application). None of these aspects of claims 2-4, 11, 28, or 33 are disclosed by the Merensalmi patent.

The Examiner focuses upon Examples 1 and 2 of the Merensalmi patent where sugar alcohol mixtures were exposed to ruminant fluid using *in vitro* testing. The Examiner relies on this *in vitro* testing as support for rejecting claims that are defined in terms of intact sugar alcohol reaching the abomasum of the ruminant. However, the mere disclosure of *in vitro* testing (outside the rumen, by definition) does not amount to a disclosure of *in vivo* results that would be required for disclosing the features of claims phrased in terms of intact sugar alcohol reaching the abomasum of the ruminant.

Indeed, the Merensalmi patent merely discloses sugar alcohol testing in rumen fluid, outside of a cow, without providing any type of detail that would allow one to expect that the rumen testing fluid conditions approximate the conditions found during oral ingestion of sugar alcohol by the ruminants. Thus, the mere disclosure of this rumen fluid testing, along with the Merensalmi Example 5 disclosure of sugar alcohol feeding, does not amount to a disclosure that the sugar alcohols ingested by the animals in Example 5 behave the same way as the sugar alcohols that were tested in the rumen fluid. There are simply too many variables present in the cow that could not and were not replicated during the simple rumen fluid testing. Furthermore, with respect to the

requirement of claim 4 that the sugar alcohol be protected from “any alteration” in the rumen of the ruminant, Applicant notes that the *in vitro* testing results disclosed in the Merensalmi patent (at column 2, line 60, through column 3, line 29) **do** disclose degradation of sugar alcohol in the rumen fluid during the *in vitro* testing and therefore do not disclose this requirement of claim 4.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 2-4, 11, 28, and 33. Consequently, the Merensalmi patent does not anticipate any of claims 2-4, 11, 28, and 33 of the above-identified application.

Claims 8 and 14 read as follows:

8. *The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of true protein, the weight percent of fat, the weight percent of lactose, the weight percent of total solids, or any combination of these in milk produced by the ruminant.*

14. *The method of claim 10 wherein the sugar alcohol that is supplied to the abomasum of the ruminant is effective to enhance the weight percent of true protein, the weight percent of fat, the weight percent of lactose, the weight percent of total solids, or any combination of these in milk produced by the ruminant.*

Claims 8 and 14 further define that enhancing milk component production in accordance with the present invention includes enhancing the weight percent of true protein, fat, lactose, and/or total solids in milk that is produced by the ruminant.

The Merensalmi patent does not teach or disclose anything about an increase in the weight percent of true protein, fat, lactose, and/or total solids occurring in the milk produced by the test animals. Additionally, Applicant directs the Examiner’s attention to column 3, lines 64-68, that disclose a **decrease** in the fat percentage in milk produced by the test animals of the Merensalmi patent.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 8 and 14. Consequently, the Merensalmi patent does not anticipate either claim 8 or claim 14 of the above-identified application.

Claims 29 and 34 read as follows:

*29. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of true protein in milk produced by the ruminant.*

*34. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of true protein in milk produced by the ruminant.*

Claims 29 and 34 further define that milk **component** production enhancement in terms of enhancing the weight percent of true protein in milk that is produced by the ruminant. The Merensalmi patent does not teach or disclose anything about an increase in the weight percent of true protein occurring in the milk produced by the test animals. Furthermore, the Examiner has never even alleged that the Merensalmi patent discloses anything about increasing the concentration of true protein in milk produced by the test animals.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 29 and 34. Consequently, the Merensalmi patent does not anticipate either claim 29 or claim 34 of the above-identified application.

Claims 30 and 35 read as follows:

*30. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of lactose in milk produced by the ruminant.*

*35. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of lactose in milk produced by the ruminant.*

Claims 30 and 35 further define that milk **component** production enhancement in terms of enhancing the weight percent of lactose in milk that is produced by the ruminant. The Merensalmi patent does not teach or disclose anything about an increase in the weight percent of lactose occurring in the milk produced by the test animals. Furthermore, the Examiner has never even alleged that the Merensalmi patent discloses anything about increasing the concentration of lactose in milk produced by the test animals.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 30 and 35. Consequently, the Merensalmi patent does not anticipate either claim 30 or claim 35 of the above-identified application.

Claims 31 and 36 read as follows:

*31. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of fat in milk produced by the ruminant.*

*36. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of fat in milk produced by the ruminant.*

Claims 31 and 36 further define that milk **component** production enhancement in terms of enhancing the weight percent of fat in milk that is produced by the ruminant. The Merensalmi patent does not teach or disclose anything about an increase in the weight percent of fat occurring in the milk produced by the test animals. Instead, at column 3, lines 64-68, the Merensalmi patent actually discloses a *decrease* in the fat percentage in milk produced by the test animals of the Merensalmi patent. Furthermore, the Examiner has never even alleged that the Merensalmi patent discloses anything about increasing the concentration of fat in milk produced by the test animals.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 31 and 36. Consequently, the Merensalmi patent does not anticipate either claim 31 or claim 36 of the above-identified application.

Claims 32 and 37 read as follows:

*32. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of total solids in milk produced by the ruminant.*

*37. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of total solids in milk produced by the ruminant.*

Claims 32 and 37 further define that milk **component** production enhancement in terms of enhancing the weight percent of total solids in milk that is produced by the ruminant. The

Merensalmi patent does not teach or disclose anything about an increase in the weight percent of total solids occurring in the milk produced by the test animals. Furthermore, the Examiner has never even alleged that the Merensalmi patent discloses anything about increasing the concentration of total solids in milk produced by the test animals.

The foregoing comments demonstrate that the Merensalmi patent does not disclose each of the features required by claims 32 and 37. Consequently, the Merensalmi patent does not anticipate either claim 32 or claim 37 of the above-identified application.

Claims 1-4, 8, 10-11, 14, and 28-37 are each believed allowable. Claim 9 is also believed allowable, since claim 9 depends from allowable claim 1. Also claim 13 is believed allowable since claim 13 depends from allowable claim 10. Furthermore, claims 2-4, 8, 11 14, and 28-37 are believed allowable for an additional reason, since claims 2-4, 8, and 28-32 each depend from allowable claim 1 and since claims 11, 14, and 33-37 each depend from allowable claim 10. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-4, 8-11, 13, 14, and 28-37 under 35 U.S.C. §102 based upon the Merensalmi patent and that claims 1-4, 8-11, 13, 14, and 28-37 be allowed.

***Claim Rejections Under 35 U.S.C. §103(a)***

In the Office Action, the Examiner rejected claims 1-4, 8-11, 13, 14, and 28-37 under 35 U.S.C. §103(a) as allegedly “being unpatentable over” the Merensalmi patent in view of U.S. Patent No. 3,959,493 to Baalsrud (subsequently referred to as the “Baalsrud patent”). In support of this rejection, the Examiner stated in the March 31, 2000 Office Action:

Merensalmi (above/provides sugar alcohols to the abomasum, effectively, protected while traversing the rumen, but not in a typical rumen by pass format. But, it is also noted that the alcohols replace glycerol, propionate and propionic acid (col. 1, bottom).

Baalsrud provides an example of Rumenal by pass, for delivery of propionic (sic) and (col. 3) to enhance milk production.



It would have been obvious to a person of ordinary skill in the art at the time the invention was made desiring to utilize as by pass composition, (sic) to use one of Merensalmi, modified with Baalsrud to provide acceptable application.

Baalsrud teaches one having ordinary skill in the art would be motivated to perform this modification in order to increase amount of desired component to reach abomasum.

In the present Office Action, the Examiner additionally stated:

Applicant argues in essence, Baalsrud is cited for background information.

As to Baalsrud, in essence, it was cited as an indication of rumen - protected feed administration.

Despite the Examiner's comments, the Merensalmi patent and the Baalsrud patents, either separately or in combination, do not teach, suggest, disclose, or render obvious the invention of the above-identified application, as defined in claims 1-4, 8-11, 13, 14, and 28-37.

The Examiner's §103(a) rejection based upon the Merensalmi patent in view the Baalsrud patent boils down to an allegation that it would be obvious to substitute the ruminal protection that is allegedly disclosed in the Baalsrud patent in place of the feeding of non-ruminally protected (plain) sugar alcohol that is taught by the Merensalmi patent. However, the Merensalmi patent, by virtue of alleging that sugar alcohol may be fed without any ruminal protection (by virtue of the rumen fluid testing of Examples 1 and 2), actually teaches away from any such incorporation of the alleged Baalsrud ruminal protection. The Merensalmi patent, though based only upon *in vitro* test results, actually suggest that the alleged Baalsrud ruminal protection is not needed to attain enhanced milk production yields. Furthermore, any attempt to combine the alleged ruminal protection of the Baalsrud patent with the feeding approach advanced by the Merensalmi patent would destroy an important and intended, though believed erroneous by Applicant, function of feeding non-protected (plain) sugar alcohols to ruminants for milk production purposes. Thus, for this additional strong reason, the Examiner's alleged combination of details from the Baalsrud patent with details of the Merensalmi patent fails to establish that the invention of the above-identified

application, as defined in claims 1-4, 8-11, 13, 14, and 28-37, is either obvious, taught, or suggested by the Merensalmi patent or the Baalsrud patent, either separately or in combination.

As noted above, claims 1 and 10 read as follows:

- 1. A method of enhancing milk component production in a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant.*
- 10. A method of feeding a ruminant, the method comprising:  
providing a feed that comprises a sugar alcohol; and  
supplying the sugar alcohol to the abomasum of the ruminant, the sugar alcohol effective to enhance milk component production by the ruminant.*

Thus, claims 1 and 10 each define a “method of enhancing milk component production in a ruminant.”

As noted above, the Merensalmi patent does not teach disclose anything about enhancement of milk component production. The Examiner seeks to remedy this problem by relying upon the Baalsrud patent. However, the Baalsrud patent does not address sugar alcohols. Instead, the Baalsrud patent generally talks about the possibility of ruminally protecting carbohydrates. However, the Baalsrud patent does not address rumen protection of carbohydrates in relation to milk **component** production enhancement. Instead, the Baalsrud patent, like the Merensalmi patent, only concerns overall milk production enhancement. Consequently, even when the disclosures of the Baalsrud patent and the Merensalmi patent are considered, either separately or in combination, the net result is no disclosure, no teaching, and no suggestion about any milk **component** production enhancement, as required by claims 1 and 10.

The Merensalmi and Baalsrud patents, either separately or in combination, do not teach, suggest, or disclose the invention of the above-identified application, as defined in claims 1 and 10. Consequently, claims 1 and 10 are believed allowable despite the Examiner’s rejection under §103 based upon the Merensalmi and Baalsrud patents.

Next, claims 2-4, 11, 28, and 33 read as follows:

2. *The method of claim 1 wherein supplying the sugar alcohol to the abomasum of the ruminant comprises:*

*protecting the sugar alcohol from significant alteration in the rumen of the ruminant; and orally feeding the feed to the ruminant.*

3. *The method of claim 2, the method further comprising protecting the sugar alcohol from substantial alteration in the rumen of the ruminant.*

4. *The method of claim 2, the method further comprising protecting the sugar alcohol from any alteration in the rumen of the ruminant.*

11. *The method of claim 10 wherein supplying the sugar alcohol to the abomasum of the ruminant comprises:*

*protecting the sugar alcohol from significant alteration in the rumen of the ruminant; and orally feeding the feed to the ruminant.*

28. *The method of claim 1 wherein the sugar alcohol is ruminally-protected.*

33. *The method of claim 10 wherein the sugar alcohol is ruminally-protected.*

Therefore, claims 2 and 11 further specify that the sugar alcohol is protected from significant alteration in the rumen of the ruminant, while claim 3 specifies that the sugar alcohol is protected from substantial alteration in the rumen, and claim 4 specifies that the sugar alcohol is protected from *any* alteration in the rumen. Furthermore, claims 28 and 33 specify that the sugar alcohol is ruminally-protected, which means that the sugar alcohol is “protected from alternation during passage through the rumen.” (Page 4, lines 23-24, of the above-identified application). None of these aspects of claims 2-4, 11, 28, or 33 are disclosed by either the Merensalmi patent or the Baalsrud patent.

The Examiner focuses upon Examples 1 and 2 of the Merensalmi patent where sugar alcohol mixtures were exposed to ruminant fluid using *in vitro* testing. The Examiner relies on this *in vitro* testing as support for rejecting claims that are defined in terms of intact sugar alcohol reaching the abomasum of the ruminant. However, the Merensalmi patent merely discloses sugar alcohol testing in rumen fluid, outside of a cow, without providing any type of detail that would allow one to expect that the rumen testing fluid conditions approximate the conditions found during oral ingestion of sugar alcohol by the ruminants. Thus, the mere disclosure of this rumen fluid testing, along with the Merensalmi Example 5 disclosure of sugar alcohol feeding, does not amount to a disclosure that the sugar alcohols ingested by the animals in Example 5 behave the same way as the sugar alcohols that were tested in the rumen fluid. There are simply too many variables present in the cow that could not and were not replicated during the simple rumen fluid testing.

As discussed above, the Merensalmi patent does not disclose or otherwise teach or suggest anything about the sugar alcohol protection that is required by claims 2-4, and 11 or about the ruminally-protected sugar alcohol that is required by claims 28 and 33. Consequently, the Examiner relies upon the Baalsrud patent to correct these deficiencies. However, the Baalsrud patent does not address sugar alcohols. Instead, the Baalsrud patent generally talks about the possibility of ruminally protecting carbohydrates. However, the Baalsrud patent does not address rumen protection of carbohydrates in relation to milk **component** production enhancement. Instead, the Baalsrud patent, like the Merensalmi patent, only concerns overall milk production enhancement. Thus, taken together, the Baalsrud and Merensalmi patents do not teach, suggest, or disclose anything about sugar alcohol protection in relation to milk component production enhancement or about ruminally-protected sugar alcohol in relation to milk component production enhancement.

Also, with respect to the requirement of claim 4 that the sugar alcohol be protected from "any alteration" in the rumen of the ruminant, Applicant notes that the *in vitro* testing results disclosed in the Merensalmi patent (at column 2, line 60, through column 3, line 29) **do** disclose some degradation of sugar alcohol in the rumen fluid during the *in vitro* testing and therefore do not disclose this requirement of claim 4. The Baalsrud patent does nothing to help recover from this

failure on the part of the Merensalmi patent, since the Baalsrud patent does not address rumen protection of sugar alcohol, or even rumen protection of carbohydrates, in relation to milk **component** production enhancement, as claim 4 requires.

Furthermore, the Merensalmi patent, by virtue of alleging that sugar alcohol may be fed without any ruminal protection (by virtue of the rumen fluid testing of Examples 1 and 2), actually teaches away from any such incorporation of the alleged Baalsrud ruminal protection. The Merensalmi patent, though based only upon *in vitro* test results, actually suggests that the alleged Baalsrud ruminal protection is not needed to attain enhanced milk production yields. Furthermore, any attempt to combine the alleged ruminal protection of the Baalsrud patent with the feeding approach advanced by the Merensalmi patent would destroy an important and intended, though believed erroneous by Applicant, function of feeding non-protected (plain) sugar alcohols to ruminants for milk production purposes.

The Merensalmi and Baalsrud patents, either separately or in combination, do not teach, suggest, or disclose the invention of the above-identified application, as defined in claims 2-4, 11, 28, and 33. Consequently, claims 2-4, 11, 28, and 33 are believed allowable despite the Examiner's rejection under §103 based upon the Merensalmi and Baalsrud patents.

Next, claims 8 and 14 read as follows:

8. *The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of true protein, the weight percent of fat, the weight percent of lactose, the weight percent of total solids, or any combination of these in milk produced by the ruminant.*

14. *The method of claim 10 wherein the sugar alcohol that is supplied to the abomasum of the ruminant is effective to enhance the weight percent of true protein, the weight percent of fat, the weight percent of lactose, the weight percent of total solids, or any combination of these in milk produced by the ruminant.*

Thus, claims 8 and 14 specify supply of sugar alcohol to the abomasal of the ruminant that is effective to enhance the weight percent of true protein, fat, lactose, total solids, or "any combination of these" in milk that is produced by the ruminant.

As discussed above, there is nothing pertaining to enhancement of any of these milk **components** in the Merensalmi patent. Therefore, the Examiner attempts to remedy this deficiency by relying on the Baalsrud patent. However, as noted above, the Baalsrud patent only concerns overall milk production enhancement, rather than milk **component** enhancement. Furthermore, the Examiner has never even alleged that either the Merensalmi patent or the Baalsrud patent teaches, suggest, or discloses anything about increasing the concentration of milk components in milk produced by the test animals. Consequently, claims 8 and 14 are believed allowable, since the Merensalmi patent and the Baalsrud patent, either separately or in combination, do not teach, suggest, disclose, or render obvious all of the features that are defined in claims 8 and 14 of the above-identified application.

Claims 29 and 34 read as follows:

*29. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of true protein in milk produced by the ruminant.*

*34. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of true protein in milk produced by the ruminant.*

Claims 29 and 34 further define that milk **component** production enhancement in terms of enhancing the weight percent of true protein in milk that is produced by the ruminant. As discussed above, there is nothing pertaining to enhancement of any of the concentration of the true protein concentration in the Merensalmi patent. Therefore, the Examiner attempts to remedy this deficiency by relying on the Baalsrud patent. However, as noted above, the Baalsrud patent only concerns overall milk production enhancement, rather than enhancement of any milk component, such as true protein. Furthermore, the Examiner has never even alleged that either the Merensalmi patent or the Baalsrud patent teaches, suggest, or discloses anything about increasing the concentration of true protein in milk produced by the test animals. Consequently, claims 29 and 34 are believed allowable, since the Merensalmi patent and the Baalsrud patent, either separately or in combination, do not

teach, suggest, disclose, or render obvious all of the features that are defined in claims 29 and 34 of the above-identified application.

Claims 30 and 35 read as follows:

*30. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of lactose in milk produced by the ruminant.*

*35. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of lactose in milk produced by the ruminant.*

Claims 30 and 35 further define that milk **component** production enhancement in terms of enhancing the weight percent of lactose in milk that is produced by the ruminant. As discussed above, there is nothing pertaining to enhancement of any of the concentration of the lactose concentration in the Merensalmi patent. Therefore, the Examiner attempts to remedy this deficiency by relying on the Baalsrud patent. However, as noted above, the Baalsrud patent only concerns overall milk production enhancement, rather than enhancement of any milk component, such as lactose. Furthermore, the Examiner has never even alleged that either the Merensalmi patent or the Baalsrud patent teaches, suggest, or discloses anything about increasing the concentration of lactose in milk produced by the test animals. Consequently, claims 30 and 35 are believed allowable, since the Merensalmi patent and the Baalsrud patent, either separately or in combination, do not teach, suggest, disclose, or render obvious all of the features that are defined in claims 30 and 35 of the above-identified application.

Claims 31 and 36 read as follows:

*31. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of fat in milk produced by the ruminant.*

*36. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of fat in milk produced by the ruminant.*

Claims 31 and 36 further define that milk **component** production enhancement in terms of enhancing the weight percent of fat in milk that is produced by the ruminant. As discussed above, there is nothing pertaining to enhancement of any of the concentration of the fat concentration in the Merensalmi patent. Therefore, the Examiner attempts to remedy this deficiency by relying on the Baalsrud patent. However, as noted above, the Baalsrud patent only concerns overall milk production enhancement, rather than enhancement of any milk component, such as fat. Furthermore, the Examiner has never even alleged that either the Merensalmi patent or the Baalsrud patent teaches, suggest, or discloses anything about increasing the concentration of fat in milk produced by the test animals. Consequently, claims 31 and 36 are believed allowable, since the Merensalmi patent and the Baalsrud patent, either separately or in combination, do not teach, suggest, disclose, or render obvious all of the features that are defined in claims 31 and 36 of the above-identified application.

Claims 32 and 37 read as follows:

32. The method of claim 1 wherein enhancing milk component production comprises enhancing the weight percent of total solids in milk produced by the ruminant.

37. The method of claim 10 wherein enhancing milk component production comprises enhancing the weight percent of total solids in milk produced by the ruminant.

Claims 32 and 37 further define that milk **component** production enhancement in terms of enhancing the weight percent of total solids in milk that is produced by the ruminant. As discussed above, there is nothing pertaining to enhancement of any of the concentration of the total solids concentration in the Merensalmi patent. Therefore, the Examiner attempts to remedy this deficiency by relying on the Baalsrud patent. However, as noted above, the Baalsrud patent only concerns overall milk production enhancement, rather than enhancement of any milk component, such as total solids. Furthermore, the Examiner has never even alleged that either the Merensalmi patent or the Baalsrud patent teaches, suggest, or discloses anything about increasing the concentration of total solids in milk produced by the test animals. Consequently, claims 32 and 37 are believed allowable, since the Merensalmi patent and the Baalsrud patent, either separately or in combination, do not



teach, suggest, disclose, or render obvious all of the features that are defined in claims 32 and 37 of the above-identified application.

Claims 1-4, 8, 10-11, 14, and 28-37 are each believed allowable. Claim 9 is also believed allowable, since claim 9 depends from allowable claim 1. Also claim 13 is believed allowable since claim 13 depends from allowable claim 10. Furthermore, claims 2-4, 8, 11 14, and 28-37 are believed allowable for an additional reason, since claims 2-4, 8, and 28-32 each depend from allowable claim 1 and since claims 11, 14, and 33-37 each depend from allowable claim 10. Consequently, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-4, 8-11, 13, 14, and 28-37 under 35 U.S.C. §103 based upon the Merensalmi patent and the Baalsrud patent and that claims 1-4, 8-11, 13, 14, and 28-37 be allowed.

#### ***Provisional Double-Patenting Rejection***

In the Office Action, the Examiner rejected claims 1-4, 8-11, 13-14, and 28-37 under a provisional obvious-type double patenting rejection as allegedly “being unpatentable over claim 1-15 of copending Application No. 09/338314.” According to the Examiner, “Although the conflicting claims are not identical, they are not patentably distinct from each other because the 338 application encompasses the claimed subject matter.”

Due to the provisional nature of this double patenting rejection, Applicant respectfully requests an opportunity to address this provisional rejection after prosecution has progressed in “copending Application No. 09/338314” to a point where this provisional rejection either becomes a non-provisional rejection or the basis for this provisional rejection becomes moot. If the non-provisional double-patenting rejection becomes a non-provisional double-patenting rejection, Applicant is prepared to take appropriate action to address any such non-provisional double-patenting rejection. These comments are believed to adequately address this provisional double-patenting rejection of the Examiner.

***New Claims Added By Applicant***

Applicant has added new claims 38-43, as indicated above. Support for new claims 38-43 is believed to exist in the above-identified application. Applicant respectfully requests consideration and allowance of new claims 38-43.

**CONCLUSION**

Claims 1-4, 8-11, 13, 14, and 32-37 are each believed allowable. Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of claims 1-4, 8-11, 13-14, and 32-37 and that claims 1-4, 8-11, 13-14, and 32-37 be allowed. New claims 38-43 are believed allowable. Consequently, Applicant respectfully requests that the Examiner consider and allow new claims 38-43. Finally, Applicant respectfully request that the Examiner reconsider and withdraw the restriction requirement of the above-identified application concerning the claims of the above-identified application that the Examiner has placed in Groups I, II, and III. The Examiner is invited to contact Applicant's below-named attorney to discuss any aspect of this application and advance this application to allowance.

Respectfully submitted,

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**APPENDIX:  
MARKED UP VERSION OF CLAIM AMENDMENTS**

New claims 38-43:

--38. The method of claim 2 wherein protecting the sugar alcohol from significant alteration in the rumen of the ruminant allows at least about 50 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.--

--39. The method of claim 2, the method further comprising protecting the sugar alcohol from alteration in the rumen of the ruminant to a degree that allows at least about 75 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.--

--40 The method of claim 2, the method further comprising protecting the sugar alcohol from alteration in the rumen of the ruminant to a degree that allows at least about 90 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.--

--41. The method of claim 11 wherein protecting the sugar alcohol from significant alteration in the rumen of the ruminant allows at least about 50 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.--

--42. The method of claim 11, the method further comprising protecting the sugar alcohol from alteration in the rumen of the ruminant to a degree that allows at least about 75 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.--

**APPENDIX:  
MARKED UP VERSION OF CLAIM AMENDMENTS**

--43. The method of claim 11, the method further comprising protecting the sugar alcohol from alteration in the rumen of the ruminant to a degree that allows at least about 90 weight percent of the sugar alcohol that is orally ingested by the ruminant to arrive unaltered, as sugar alcohol, in the abomasum of the ruminant after passing through the rumen of the ruminant.--